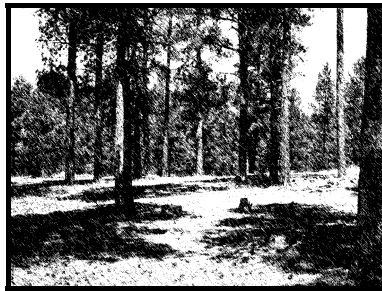

APPENDIX B

PROCEDURES FOR CONDUCTING FWQG AUDITS



PROCEDURES FOR CONDUCTING FOREST WATER QUALITY GUIDELINES AUDITS



Utah Department of Natural Resources
Division of Forestry, Fire and State Lands

Introduction

Forests are an important natural resource in the state of Utah providing significant contributions to the state's quality and way of life. Findings from the 1996 Utah Forest Practices Task Force indicate that timber harvesting on Utah's non-federal lands has increased in recent years. This trend is expected to continue as population and wood product demand continues to increase and supply from federally-owned lands decreases. Conducted improperly, timber harvesting sometimes leads to land degradation. The negative impacts of poor timber harvesting can include soil erosion, sedimentation and decline in water quality.

Since the 1970s, non-regulatory Forestry Best Management Practices (BMPs) have provided guidance as minimum water quality protection standards for forestry operations. In 1987 Congress amended the Clean Water Act and added Section 319 to address non-point sources of pollution. Section 319 directed all States to develop non-point source pollution plans to address pollution of this nature.

Utah's Non-point Source Management Plan (1988) describes BMPs and narrates the importance of an ongoing maintenance and monitoring effort:

"BMPs may be defined as methods, measures or combination of measures that are determined by an agency after problem assessment to meet its non-point source pollution control needs. They include, but are not limited to, structural and nonstructural controls, and operation and maintenance procedures."

"Best Management Practices cannot be viewed in isolation. They must be seen as a management strategy, an approach, or a system. Seldom is one practice sufficient to resolve a non-point source problem. A combination of practices is usually required along with a management philosophy of commitment to reducing non-point source pollution. It is rarely sufficient to install a practice and forget it. BMPs and systems require an ongoing maintenance and management effort which must be recognized at the outset."

The 1998 Silviculture Addendum uses Forest Water Quality Guidelines (FWQGs) as the basic management practice and serves as the cornerstone for protecting forest resources and water quality:

"Forest Water Quality Guidelines are a collection of voluntary field applicable practices for use during forestry activities to protect water quality adopted by the State and contained within the Non-Point Source Management Plan."

Properly applied, the FWQGs can minimize non-point source pollution produced from timber harvesting activities.

The 2001 Utah Legislature passed the Utah Forest Practices Act (FPA) (Chapter 65A-8a) which requires operators to register with and notify the Division of Forestry, Fire and State Lands of intent to conduct forest practices. The FPA also provides direction to the division to promote the implementation of the FWQGs by providing technical assistance and education to landowners and operators. The registration requirement provides a mechanism which identifies who is operating in Utah. The notification requirement provides the means of identifying where forestry activities are occurring in the state. Under this law, information about the FWQGs is sent to both landowners and operators.

Implementation of the FWQGs is administered within a non-regulatory framework, and is largely dependent upon the forest products industry taking a lead role in this effort. The forest products industry in Utah should realize the present and long-term benefits of implementing the FWQGs voluntarily. The FWQGs are designed to provide the best protection to water quality and aquatic resources during the management of forest resources, including timber harvesting. It is expected that forest industry within Utah follow the lead of industry in other states and utilize the guidelines in a voluntary, self-policing fashion to provide water quality protection while providing forest products to consumers. Acceptance and implementation of the FWQGs may forestall or preclude the need for future regulation of timber harvesting.

Monitoring is the cornerstone of the FWQGs. Since the FWQGs are recognized by state and federal legislation as an acceptable method to control non-point source pollution, it makes sense to check the application and effectiveness of the FWQGs as part of such a program. Implementation or compliance monitoring is a widely used and accepted method of evaluating forest practices, and serves as a surrogate for quantitative water quality monitoring. Generally, monitoring forest practices includes on-site, field review of harvested sites. Utah will use a qualitative implementation approach through performance reviews or “audits” to determine if the FWQGs are being applied and whether they are effective at minimizing erosion and sedimentation.

Quantitative water quality monitoring is a long-term and expensive endeavor. Water quality varies naturally due to variable geology, land forms, soils, and climatic events. Due to this variability, investigators must collect large numbers of samples over a long period of time to accurately characterize water quality. States are increasingly relying on qualitative surveys, using interdisciplinary teams to assess forest practices on-site and to monitor silvicultural non-point source pollution control programs.

Program Goals, Objectives and Strategy

From the division's perspective, the goals and objectives of the FWQG Monitoring Program (FWQGMP) are two-fold:

- Develop, coordinate and implement a forest water quality monitoring and evaluation program identified in Utah's Non-point Source Management Plan for Silvicultural Activities, and;
- Demonstrate the application of the FWQGs as being effective in reducing non-point source pollution and protecting soil and water resources.

As a means to achieve the goals of the FWQGMP, the following objectives have been identified:

- Through a field review process, determine if the FWQGs are being applied during timber harvesting operations. This is the process of systematically gathering information to determine whether the FWQGs are being applied and applied in the intended manner. This addresses the subject of FWQG implementation.
- Through a field review process, assess the relative effectiveness of the FWQGs at reducing non-point source pollution related to timber harvesting activities. This is the process of information gathering and evaluating whether the application of the FWQGs achieves the anticipated or desired resource protection. This addresses the subject of FWQG effectiveness.
- Identify and provide a feedback mechanism on the need to revise, clarify or strengthen the FWQGs.

Monitoring Approach and Strategy

Within the context of the FPA recognizing the need to promote the implementation of the FWQGs before, during and after the conduct of forest practices, there is a tacit approval from the state legislature body to establish and conduct non-point source water pollution monitoring related to silvicultural activities.

Previously, monitoring efforts were hampered by the division's inability to identify and locate where forest management activities were occurring on the landscape. Through the Notification of Intent (NOI) requirement of the FPA, the division now has a mechanism that provides a point of contact and location of forest practices.

Cooperation among landowners and other participating entities is crucial to the overall effectiveness of the FWQGMP. It should be thought of in terms of an assessment or evaluation rather than something designed to bring about enforcement actions. Due to the qualitative nature of the FWQGMP, monitoring forest practices should be conducted in the relative sense as opposed to absolute quantification. For example, the intent of the program is not to determine how much sediment is entering a stream. Rather, the focus is on determining if there is soil movement, whether sediment is entering a stream and, if so, its potential or actual relative impact on water quality. Monitoring will target harvesting activities occurring on private forest lands and state-owned forest lands throughout Utah.

Statewide monitoring efforts will incorporate a combined, two-phased approach to carry out the FWQGMP - continuous and periodic. The continuous monitoring is referred to as Phase I. The periodic monitoring is referred to as Phase II.

Phase I - Continuous (on-going) Post-Harvest Field Review

Monitoring is a long-term process. Initially, the FWQGMP will serve as a point of reference for future decision making and programmatic refinements. The long-term monitoring endeavor will be linked to the division's landowner assistance programs. As part of its statutory charge, the division provides a balanced program of technology transfer, assistance, and education to Utah's non-federal landowners within a non-regulatory framework. Direction provided by the FPA strengthens the division's ability to carry out this function.

Successful conduct of Phase I monitoring will require a strong cooperative relationship between division's Technical Assistance & Consultation (TAC) and Program Delivery (PD) work units. Data collection will utilize a field-based method designed to focus on assessing both the application and effectiveness of applicable FWQGs. The intent of Phase I monitoring is to conduct on-site, post-harvest reviews for all timber harvesting activities occurring on state and private lands in the state. Assuming access is allowed, each site will be given a post-harvest evaluation by not less than a two-person assessment team and will include the Area Manager or Area Forester from the respective administrative area and the Forest Stewardship Coordinator or his designee. The team will gather information which will be used to evaluate FWQG application and effectiveness. Conducting this phase of the monitoring program should be considered as routine follow-up with landowners and be incorporated into the division's normal operating procedure.

Phase II - Periodic (biennial) Post-Harvest Field Review

The second phase of the FWQGMP will implement periodic (biennial) evaluations on a selection of sites previously evaluated under Phase I. The sites selected for Phase II will meet specific selection criteria. Periodic post-harvest field reviews will be done through an interdisciplinary (ID) team approach.

FWQG Audit Process

Overview

The FWQGMP will depend largely on operator compliance with the FPA NOI requirement and willingness of landowners to allow monitoring on their property. The notification will be the primary mechanism enabling the division to establish a point of contact with the landowner and operator, identify where the forestry activity is occurring and make available technical assistance services to the landowner before, during and after the conduct of forestry activities.

Phase I Monitoring

Notifications submitted to the division shall be acknowledged by the forest stewardship coordinator or designee within ten days of receipt. The acknowledgment shall include information on the forest water quality guidelines and any other information the division believes would assist the landowner and operator with the conduct of forest practices. Landowners will be encouraged to contact the area office for assistance.

If a landowner does not contact the area office, the division will initiate follow-up action subsequent to receipt of an NOI. A letter requesting permission to enter the property to conduct inspections and post-harvest review will be sent to the landowner by the area office within 14 days after receipt of an NOI. Upon receipt of written confirmation from the landowner, the division will schedule time necessary for conducting inspections and reviews. Depending upon the level of rapport with a landowner, the requirement for written communication may be waived by an Area Manager or Area Forester.

If the landowner does not respond to the letter requesting permission to enter the property to conduct inspections and a post-harvest review, the area office will attempt to contact the landowner by phone. If this is unsuccessful, a final request will be sent via certified mail with return receipt. Standard text for the final letter will be prepared by the forest stewardship coordinator. If the landowner does not respond to the final request, the division will consider permission to enter the property to have been denied. A TSIR documenting this determination will be sent to the forest stewardship coordinator.

Ideally, the process of conducting Phase I FWQG Monitoring will include a minimum of three site visits: a pre-operational inspection; an in-progress inspection; and a post harvest audit.

Pre-Operation Inspection

The first site visit is a pre-operational inspection and will occur before the harvesting activity begins. The purpose of the pre-operational inspection is to discuss the proposed forest practice(s) and applicable FWQGs with the landowner and operator, explain the reasoning for monitoring and for the Area Forester to become familiar with the harvest site. The intent of this visit is to convey to the landowner and operator the value of using the FWQGs. The FWQGs are designed to provide the best protection for forest, soil and water resources during timber harvesting activities. A Timber Sale Inspection Report (TSIR) should be completed at the end of the pre-operation inspection.

In-Progress Inspection

The second site visit will occur during the harvest activity at which time another TSIR will be completed. During the in-progress inspection, particular attention will be given to any potential problems arising as a result of misapplication of applicable FWQGs and recommendations for corrective action(s). The TSIR will document special concerns related to FWQG implementation to be taken into account during Phase I audits. Any obvious misapplication of FWQGs will be reported to, or discussed with, the landowner and operator. Hopefully, the landowner will take the time to have the operator correct the misapplication.

FWQG Audit

The third step in the Phase I Monitoring process occurs after the harvesting activity is completed. At this point, a FWQG Audit will be conducted. The procedure is as follows.

1. The area forester gives an on-site orientation to the audit team. During the orientation any specific concerns regarding FWQG implementation will be discussed. Subjects of concern may have been identified on the TSIR, may result from the area forester's knowledge of the sale area or may be specific to topography, proximity to water, soil type and other landscape characteristics.
2. Except as noted below for roads, examine and rate the entire sale area. This requires that all roads be traversed (walk or drive), that all skid trails be walked and that the full length of streams inside the sale boundary be walked. Streams in proximity to a sale boundary should be examined for signs of sedimentation that may be associated with the timber sale. The team may stay together or split-up to examine the sale area.
3. Take photographs of all conditions likely to be rated 1 (major and prolonged impacts on soil and water resources) under effectiveness.

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4. After examination of the entire sale area, the audit team discusses its observations. One person fills in the Post-Harvest Field Review form. The ratings on the form represent the team's consensus.
- a. Determine which FWQGs are applicable to the site. A maximum of eight FWQGs will be rated. On the form, check all that apply.
 - b. There is a maximum of 76 elements to rate under the eight FWQGs. Ignore elements of non-applicable FWQGs. By design, some elements are repetitive or have little to do with water quality.
 - c. Rate the site for FWQG application and effectiveness. Remember, we are rating elements that may impact water quality, forest productivity, and other soil and water resources. We are not rating aesthetics. The application rating uses a five-point scale. The effectiveness rating uses a six-point scale.
 - d. The application rating measures whether the FWQG element has been applied, whether it has been applied correctly, and whether it has been applied in a proper location. The rating guide is on the form. Ratings 5 and 4 are self-explanatory. A rating of 3 means that the departures are of small magnitude distributed over a localized area, or over a relatively larger area where the potential for adverse impact is low. A rating of 2 means that the departures are of large magnitude, or that the FWQG element has been repeatedly neglected. A rating of 1 means that there is no evidence of the operator applying the element, and that risk of or damage to soil and water resources, is obvious.
 - e. The effectiveness rating serves as an impact indicator, and qualitatively evaluates how well the FWQG elements protect soil and water resources. The rating represents a snapshot (single point-in-time) of current conditions. The definitions of ratings are on the form. Rate the FWQG element according to the team's assessment of how well the element is performing. For example, has application (or lack of application) increased or decreased the likelihood of sediment delivery to a water body?
 - f. When rating for roads, evaluate only the portion of the road that has been constructed or reconstructed solely for the purpose of the timber sale.

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- g. Remember that adverse water quality impacts may result from activity not associated with forest practices. For example, grazing-related impacts, or impacts associated with use of roads for something other than hauling logs may present difficulties when rating FWQG elements. In this occurs, please make a note on the form.
5. Send the original completed form to the Stewardship Coordinator, keep a copy on file in the area office.

Phase II Monitoring

Phase II repeats the Phase I process for selected sites, but with an ID team rather than just division personnel. Using the ID team approach will achieve two purposes:

- ensuring consistent implementation of assessment methods between sites across the state. (Proper use of standardized methods will result in comparable data between areas.)
- reducing the level of bias associated with internal or “in-house” monitoring. (The division has an obligation to provide credible and legitimate information to constituents.)

Site Selection

Monitoring the FWQGs (both phases) will occur on non-federal lands. Since Phase I monitoring targets all harvesting activities occurring across the state, consideration of site selection criteria and distribution is not warranted. With Phase II monitoring, however, site selection criteria will be incorporated into the overall program design.

Site Selection Process

Selection of Phase II sites will include the following:

- identifying all sites which satisfy one or more of the selection criteria.
- prioritizing all sites which satisfy one or more of the site selection criteria.
- verifying that the sites selected for audit satisfy one or more of the selection criteria and are prioritized accordingly. (The objective of the site verification is to minimize the potential for the audit team traveling to an audit site and upon arrival finding the site does not satisfy one or more of the site selection criteria. The field verification of selected sites will be accomplished through consultation with the Area Forester and/or Area Manager or by pre-audit site visits.)

Site Selection Criteria

Sites should be selected if they satisfy one or more of the following criteria. In general, the more criteria satisfied, the higher the priority for selection.

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- the sale area includes a SMZ (a perennial stream lies within the sale boundary).
 - sale area includes highly erodible soil.
 - the sale is within a watershed on the TMDL list and sediment is the identified pollutant.
 - a timber sale inspection report identifies a specific NPS concern.
 - the Area Manager or Area Forester recommends a Phase II audit.

Number of Sites to Audit

The number of Phase I sites satisfying the Phase II selection criteria, the time commitment from team members and the relative efficiency of the team conducting the audits are the most important factors to consider when determining the number of sites to audit. During the first round of Phase II, as many sites as possible under operational constraints will be examined. As experience with Phase II increases, the number of sites will be easier to determine.

Distribution of Audit Sites

If NOIs submitted to the division include all Areas, at least one site per Area will be selected for Phase II.

General Time Line for Phase II

- September - Inform landowners that the division will be commencing field reviews, and request permission to enter property. Request the participation of audit team members in the upcoming audits.
- October - Determine the number of sites to audit based on formulated site selection criteria. Ensure adequate distribution of audit sites by ownership.
- November - Confirm audit team membership. Inform team members of the audit dates, calibration training and post audit team meeting.
- March - Candidate site information will be compiled from NOI forms and Phase I field reviews.
- April - Complete site selection and audit schedule. Inform team members, agencies and companies with final audit schedule.
- June - Conduct calibration training session and begin the Phase II audit process.
- October - Conduct post-audit meeting with audit team members.

When completed, Phase II audit information will be compiled, analyzed and assembled into a written report.

Team Member Recruitment

A core ID team will be assembled to perform Phase II audits. If there are too many sites to audit during this phase, a second team may be assembled. The core team may be augmented by local expertise or interested persons on a case-by-case basis.

The process for establishing team membership should begin in the fall of the year preceding the Phase II audits. Prospective team members need to be identified and contacts made requesting team membership. The division will send letters to prospective team members requesting participation in Phase II. Once team membership has been established, follow-up procedures confirming audit team membership will be initiated. Team members will be informed of audit dates, calibration training and post-audit team meetings. The division may allow for reimbursement of expenses.

The ID team will be limited to five members with combined expertise in hydrology, engineering, silviculture and soils. Because of the involvement of Utah State University (USU) in landowner and logger education, USU will be invited to commit a representative for Phase II audits.

Team Leader and Duties

The team will have assigned a team leader. The team leader is responsible for providing general leadership and direction to the team. Duties of the team leader include the following:

- contacting landowners one month in advance of the audits. Inform landowner of the date of the audit on their site and to schedule a time and place to meet.
- inform team members two weeks in advance the audit sites, date of audits, audit times and meeting places.
- making any necessary hotel accommodations for the team.
- making sure time sheets, travel vouchers and per diem forms are filled out correctly and returned in a timely manner.
- complete and maintain a master copy of each audit the team conducts and submit the completed forms to the Forest Stewardship Coordinator upon completion of all audits.

Calibration Audits and Process Review

It is desirable that those conducting FWQG field audits do so in a manner which can be consistently applied across the state. The first few Phase II audits and subsequent discussion among team members will enhance consistency. A review meeting will follow all Phase I and II audits. The purpose of the review meeting is to address with audit team members issues or concerns that arose during the field review process with the objective of refining the process.

FWQG Audit Report

Completion of Phase II field audits will initiate compilation and analysis of field data. A written analysis and summary report of findings will be prepared. The target audience includes landowners, forest product operators, resource managers, academic institutions and legislators. The report will be made available to the public.